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PROXIMITY OF DELAWARE SANITARY LANDFILLS TO WETLANDS AND DEEPWATER HABITATS
Data on Individual Landfills

by

Robin L. Gebhard
National Wetlands Inventory
U.S. Fish and Wildlife Service
St. Petersburg, Florida 33702

Roy C. Herndon and John E. Moerlins
Center for Biomedical and Toxicological Research and
Hazardous Waste Management
Florida State University
Tallahassee, Florida 32306-4016

and

Victor W. Lambou
Environmental Monitoring Systems Laboratory
U.S. Environmental Protection Agency
Las Vegas, Nevada 89193-3478

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89114

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16. ABSTRACT

Sanitary landfills can cause considerable harm to sensitive ecosystems if they are not properly located, designed, and managed. The purpose of these reports are to summarize the proximity of sanitary landfills in Delaware to wetlands and deepwater habitats (i.e. rivers, lakes, streams, bays, etc.) and present data on the individual landfills. The sanitary landfills were identified on U.S. Fish and Wildlife Service's National Wetlands Inventory maps. The nearness or proximity of the sanitary landfills to wetlands and deepwater habitats was determined by drawing three concentric regions around the point representing the location of each landfill. The radii of the concentric regions were: 1/4 mile, 1/2 mile, and 1 mile. All sanitary landfills in Delaware are located in or are close to either wetlands or deepwater habitats. These facilities have the potential to adversely affect sensitive ecosystems such as wetlands and deepwater habitats, either through habitat alterations or through the migration of contaminants from sanitary landfills.

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ABSTRACT

Sanitary landfills can cause considerable harm to sensitive ecosystems if they are not properly located, designed, and managed. The purpose of this report is to document the proximity of individual sanitary landfills included included in this study in the state of Delaware to wetlands and deepwater habitats (i.e., rivers, lakes, streams, bays, etc.); a companion report summarizes the statewide results. The data on individual landfills include: (1) general facility/site data, and (2) wetlands/deepwater habitat data.

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INTRODUCTION

Sanitary landfills, as typically defined, are waste management facilities regulated under Subtitle D of the Resource Conservation and Recovery Act (RCRA). These facilities are commonly referred to as municipal waste landfills and they are primarily used to receive household refuse and nonhazardous commercial waste. However, sanitary landfills also receive other types of Subtitle D waste, such as sewage sludge and industrial wastes. Sanitary landfills typically receive some hazardous waste in the form of household hazardous waste, and hazardous waste from small quantity generators as defined in 40 CFR Part 261.10 (Definitions). Depending upon the definition of a sanitary landfill used by the individual states, there are between 6,500 and 9,300 of these facilities permitted in the United States (U.S. EPA, 1987).

Sanitary landfills can cause considerable harm to sensitive ecosystems if they are not properly located, designed, and managed. These facilities have the potential to adversely affect sensitive ecosystems, such as wetlands and deepwater habitats, either through habitat alterations or through the migration of contaminants from sanitary landfills. In order to evaluate the seriousness of this problem, information is needed on the nearness of sanitary landfills to wetlands and surface water bodies. The purpose of this study is to document the proximity of sanitary landfills included in this study in the state of Delaware to wetlands and deepwater habitats (i.e., rivers, lakes, streams, bays, etc.). This report documents the proximity of individual sanitary landfills; a companion report, "Proximity of Delaware Sanitary Landfills to Wetlands and Deepwater Habitats, Statewide Results," summarizes the statewide results.

CONCLUSION

1. There are 3 individual sanitary landfills included in this study in Delaware for which data on their site proximity to wetlands and deepwater habitats are available.

MATERIALS AND METHODS

The source of data used to determine the locations of the sanitary landfills was the computer data file developed by Development Planning and Research Associates, Inc. for use by U.S. Environmental Protection Agency's Office of Solid Waste in its RCRA Subtitle D program. The location of the sanitary landfills was identified on U.S. Fish and Wildlife Service's National Wetlands Inventory maps and the proximity of the sanitary landfills to wetlands and deepwater habitats was determined by drawing three

concentric regions around the point representing the location of each landfill. The radii of the concentric regions were: 1/4 mile, 1/2 mile, and 1 mile.

Wetland and deepwater habitat classification types used in this report are those developed by the U.S. Fish and Wildlife Service (Cowardin et al., 1979). Five types of wetlands are distinguished in this report, i.e, Marine, Estuarine, Riverine, Lacustrine, and Palustrine. Four types of deepwater habitats are distinguished in this report, i.e, Marine, Estuarine, Riverine, and Lacustrine. The Palustrine system includes only wetland habitats.

The data on individual landfills included in this study in the state of Delaware include: (1) facility/site data, and (2) wetlands/deepwater habitat data.

The companion report, "Proximity of Delaware Sanitary Landfills to Wetlands and Deepwater Habitats, Statewide Results," presents the details on how the data were obtained and tabulated.

RESULTS

Appendix A gives the coding procedures used to compile the data on the proximity of waste sites to wetlands and deepwater habitats. Appendix B presents the data on individual sanitary landfills included in this study in the state of Delaware. There are 3 sanitary landfills included in this study in Delaware that are contained in the DPRA data base; data are available on the proximity of all of these landfills to wetlands and deepwater habitats.

LITERATURE CITED

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APPENDIX A

CODING KEY AND ABBREVIATIONS FOR DATA ON INDIVIDUAL SANITARY LANDFILLS

The codes in this Appendix are the codes in use as of January, 1989. These codes were used to compile the data on the proximity of sanitary landfills to wetlands and deepwater habitats. "9s" are used to indicate that data are either not available or unknown for a particular site parameter.

1. Record Number (RN) -- A unique numeric identifier for each site data record.

2. Work Group I.D. (ID) -- The name of the group that collected and entered the data into the data file. FSU = Center for Biomedical & Toxicological Research and Hazardous Waste Management, Florida State University, Tallahassee, Florida.

3. Date site record created or last modified (DM) -- Month and year, e.g., 0187.

4. Ecoregion (ECO) -- The ecoregion in which the site is located. The ecoregions codes are those as defined by Bailey (1976, 1980), e.g., 4110 or A3140.

5. Map availability status (MA) -- Indicates whether maps associated with the site were available from the National Wetlands Inventory Project (NWI). 01 = all maps available, 02 = some maps available, 03 = no maps available.

6. Map scale (MS) -- Indicates the scale of the NWI maps used. 01 = 1:24,000 scale, 02 = 1:63,360 scale, 03 = other scale.

7. NWI map status (NWS) -- Indicates the status of the maps available from NWI in terms of map completion. 01 = final product, 02 = draft product, 03 = photo interpretation, 04 = photo enlargement.

8. Facility code (FC) -- Indicates under what regulations a site is regulated. 01 = Subtitle D, 02 = Subtitle C.

9. Facility subcode (FSC) -- Indicates the type of facility. 01 = municipal or sanitary landfill, 02 = industrial landfill, 03 = surface impoundment, 04 = land application unit,

10. Facility data source (FDS) -- Indicates where the facility data were acquired. 01 = Development Planning Research Associates.

11. Facility data source date collected (FDD) -- Month and year the facility data were collected, e.g., 0179.

12. Site location (SL) -- Latitude and longitude in degrees, minutes, and seconds of the site location, e.g., 352613/765136.

13. State (ST) -- State where the site is located, e.g., FL.

14. County (CTY) -- County where the site is located, e.g., Beaufort.

15. Site name (SN) -- Site name usually taken from the facility permit, e.g., Beaufort County SLF (i.e., sanitary landfill).

16. Quad map name (QMN) -- The 7.5 minute quad map name used by NWI in preparing the NWI map. There may be as many as four quad maps needed for a site. Example: Beaufort Southwest.

17. Quad map name (QMN) -- The 7.5 minute map quad map name used by NWI in preparing the NWI map. There may be as many as four quad maps needed for a site. Example: Beaufort Southwest.

18. Quad map name (QMN) -- The 7.5 minute map quad map name used by NWI in preparing the NWI map. There may be as many as four quad maps needed for a site. Example: Beaufort Southwest.

19. Quad map name (QMN) -- The 7.5 minute map quad map name used by NWI in preparing the NWI map. There may be as many as four quad maps needed for a site. Example: Beaufort Southwest.

20. Site ownership (SO) -- Site ownership in terms of private or public. If a site is publicly owned but operated by a private company, it would be identified as publicly owned. 01 = public ownership, 02 = private ownership.

21. Wetlands data source (WDS) -- Indicates where the data on wetlands were acquired. 01 = NWI.

22. Wetlands data source date collected (WDD) -- Month and year that the data on wetlands were initially collected, e.g., 1281.

23. Wetlands evaluation technique (WET) -- Technique used to determine site proximity to wetlands. 01 = map interpretation, 02 = map interpretation and field verification.

24. Wetlands evaluation technique date (WED) -- Month and year that the evaluation technique was used to determine site proximity to wetlands, e.g., 0785.

25. Proximity to marine Wetlands (PMW) -- Proximity of a site to marine wetlands zones, i.e., (1) site location point is located within marine wetlands, (2) marine wetlands are located within 1/4 mile of the site location point, (3) marine wetlands are located in the zone 1/4 mile to 1/2 mile from the site location point, and (4) marine wetlands are located in the zone 1/2 mile to 1 mile from the site location point. 0 = not in a zone, 1 = within a zone. Example: 0001 indicates that a site is not within a marine wetland, not within 1/4 mile of a marine wetland, that marine wetlands do not occur in the 1/4-mile to 1/2-mile zone, and marine wetlands do occur in the 1/2-mile to 1-mile zone.

26. Proximity to estuarine wetlands (PEW) -- Proximity of a site to estuarine wetlands using the same zone designations as defined for item 25.

27. Proximity to riverine wetlands (PRW) -- Proximity of a site to riverine wetlands using the same zone designations as defined for item 25.

28. Proximity to lacustrine wetlands (PLW) -- Proximity of a site to lacustrine wetlands using the same zone designations as defined for item 25.

29. Proximity to palustrine wetlands (PPW) -- Proximity of a site to palustrine wetlands using the same zone designations as defined for item 25.

30. Proximity to wetlands summary (PWS) -- Proximity of a site to wetlands, regardless of wetland type. In this summary, only the distance of each site to the nearest wetland is used. 01 = within, 02 = within 1/4 mile, 03 = within 1/2 mile, 04 = within 1 mile, 05 = more than 1 mile.

31. Deepwater habitats data source (DDS) -- Indicates where the data on deepwater habitats were acquired. 01 = NWI.

32. Deepwater habitats data source date collected (DDD) -- Month and year that the data on deepwater habitats were initially collected, e.g., 1281.

33. Deepwater habitats evaluation technique (DET) -- Technique used to determine site proximity to deepwater habitats. 01 = map interpretation, 02 = map interpretation and field verification.

34. Deepwater habitats evaluation technique date (DED) -- Month and year that the evaluation technique was used to determine site proximity to deepwater habitats, e.g., 0785.

35. Proximity to marine deepwater habitats (PMD) -- Proximity of a site to marine deepwater habitats zones, i.e., (1) site location point is located within marine deepwater habitats, (2) marine deepwater habitats are located within 1/4 mile of the site location point, (3) marine deepwater habitats are located in the zone 1/4 mile to 1/2 mile from the site location point, and (4) marine deepwater habitats are located in the zone 1/2 mile to 1 mile from the site location point. 0 = not in a zone, 1 = within a zone. Example: 0001 indicates that a site is not within a marine deepwater habitat, not within 1/4 mile of a marine deepwater habitat, that marine deepwater habitats do not occur in the 1/4-mile to 1/2-mile zone, and marine deepwater habitats do occur in the 1/2-mile to 1-mile zone.

36. Proximity to estuarine deepwater habitats (PED) -- Proximity of a site to estuarine deepwater habitats using the same zone designations as defined for item 35.

37. Proximity to riverine deepwater habitats (PRD) -- Proximity of a site to riverine deepwater habitats using the same zone designations as defined for item 35.

38. Proximity to lacustrine deepwater habitats (PLD) -- Proximity of a site to lacustrine deepwater habitats using the same zone designations as defined for item 35.

39. Proximity to deepwater habitats summary (PDS) -- Proximity of a site to deepwater habitats, regardless of deepwater habitat type. In this summary, only the distance of each site to the nearest deepwater habitat is used. 01 = within, 02 = within 1/4 mile, 03 = within 1/2 mile, 04 = within 1 mile, 05 = more than 1 mile.

40. Site elevation (EL) -- Topographic elevation of the point representing the site in units of feet, e.g., 67.

41. Site elevation within 1/4-mile radius (EL1/4) -- Lowest topographic elevation within 1/4 mile of the point representing the site in units of feet, e.g., 56.

42. Site elevation between 1/4-mile and 1/2-mile radius (EL1/2) -- Lowest topographic elevation between 1/4-mile and 1/2 mile of the point representing the site in units of feet, e.g., 42.

43. Site elevation between 1/2-mile and 1-mile radius (EL1) -- Lowest topographic elevation between 1/2-mile and 1

mile of the point representing the site in units of feet, e.g., 32.

44. Comments (COM) -- Comments about the site or the wetlands and deepwater habitats, e.g., "site is within 1/4 mile of the Everglades" or "none".

APPENDIX B

DATA ON INDIVIDUAL SANITARY LANDFILLS IN THE STATE OF DELAWARE

This appendix is a computer generated listing of data on the sanitary landfills included in this study in the state of Delaware relative to their proximity to wetlands and deepwater habitats. There are a total of 3 sanitary landfills included in Appendix B which are those contained in the DPRA data file. There are data for all of the sanitary landfills for which NWI maps are available for interpretation. This appendix also contains auxiliary information that relates to these 3 sanitary landfills. Abbreviations used in the listing are defined in Appendix A.

1. RN: 00092 2. ID: FSU 3. DM: 0987 4. ECO: 2320 5. MA: 01 6. MS: 01 7. NWS: 02 8. FC: 01 9. FSC: 01 10. FDS: 01
11. FDD: 1286 12. SL: 390210 754330 13. ST: DE 14. CTY: KENT 15. SN: CENTRAL SOLID WASTE
16. QMN1: MARYDEL 17. QMN2: 9999999999999999999 18. QMN3: 9999999999999999999 19. QMN4: 9999999999999999999
20. SO: 01 21. WDS: 01 22. WDD: 0382 23. WET: 01 24. WED: 0987 25. PMW: 0000 26. PEW: 0000 27. PMW: 0000 28. PLW: 0000
29. PPW: 0011 30. PWS: 0003 31. DDS: 01 32. DDD: 0382 33. DET: 01 34. DED: 0987 35. PMD: 0000 36. PED: 0000 37. PRD: 0000
38. PLD: 0000 39. PDS: 0005 40. EL_: 54 41. EL1: 51 42. EL2: 28 43. EL3: 18 44. COM:

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1. RN: 00093 2. ID: FSU 3. DM: 0987 4. ECO: 2214 5. MA: 01 6. MS: 01 7. NWS: 02 8. FC: 01 9. FSC: 01 10. FDS: 01
11. FDD: 1286 12. SL: 394145 753155 13. ST: DE 14. CTY: NEW CASTLE 15. SN: NEW CASTLE
16. QMN1: WILMINGTON SOUTH 17. QMN2: 9999999999999999999 18. QMN3: 9999999999999999999 19. QMN4: 9999999999999999999
20. SO: 01 21. WDS: 01 22. WDD: 0481 23. WET: 01 24. WED: 0987 25. PMW: 0000 26. PEW: 0111 27. PMW: 0000 28. PLW: 0000
29. PPW: 0011 30. PWS: 0002 31. DDS: 01 32. DDD: 0481 33. DET: 01 34. DED: 0987 35. PMD: 0000 36. PED: 0011 37. PRD: 0111
38. PLD: 0000 39. PDS: 0002 40. EL_: 10 41. EL1: 10 42. EL2: 0 43. EL3: 0 44. COM:

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1. RN: 00094 2. ID: FSU 3. DM: 0987 4. ECO: 2320 5. MA: 01 6. MS: 01 7. NWS: 02 8. FC: 01 9. FSC: 01 10. FDS: 01
11. FDD: 1286 12. SL: 383955 752655 13. ST: DE 14. CTY: SUSSEX 15. SN: SOUTHERN SOLID WASTE
16. QMN1: GEORGETOWN 17. QMN2: 9999999999999999999 18. QMN3: 9999999999999999999 19. QMN4: 9999999999999999999
20. SO: 01 21. WDS: 01 22. WDD: 0481 23. WET: 01 24. WED: 0987 25. PMW: 0000 26. PEW: 0000 27. PMW: 0000 28. PLW: 0000
29. PPW: 0111 30. PWS: 0002 31. DDS: 01 32. DDD: 0481 33. DET: 01 34. DED: 0987 35. PMD: 0000 36. PED: 0000 37. PRD: 0001
38. PLD: 0000 39. PDS: 0004 40. EL_: 41 41. EL1: 39 42. EL2: 39 43. EL3: 38 44. COM: